

Remarks

The Examiner has objected to claim 22. Claim 22 has been amended.

The Examiner has rejected claims 22-24 as being unpatentable over U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian*.

The Examiner has rejected claims 25 and 39 based on the above rejection to claim 22 in view of U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian* and in further view of *Chande*.

The Examiner has rejected claims 28, 31, 32, 35, 37, and 38 based on the above rejection to claim 22 in view of U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian* and in further view of U.S. Patent Nos. 5,585,964 to *Schaltz* and 5,535,052 to *Jorgens*.

The Examiner has rejected claim 36 based on the above rejection to claim 22 in view of U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian* and in further view of U.S. Patent No. 5,585,964 to *Schaltz*.

The Examiner has rejected claim 40 under 35 U.S.C. 103(a) in view of U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian* and in further view of U.S. Patent Nos. 5,585,964 to *Schaltz* and 5,535,052 to *Jorgens*.

The Examiner has rejected claims 42-49 under 35 U.S.C. 103(a) in view of U.S. Patent no. 5,329,352 to *Jacobsen* in view of U.S. Patent No. 5,903,688 to *Englehart et al* in view of the publication to *Qian* and in further view of U.S. Patent Nos. 5,585,964 to *Schaltz* and 5,535,052 to *Jorgens*.

In particular claim 22, and independent claims 42-44 and 46-47 have been amended to state that the support body is disposed outside of the body of the microscope. This feature was discussed in the brief interview on February 15, 2005.

In view of the above amendments, and the following remarks,

the applicant respectfully traverses the above rejections. In particular, for an Examiner to make an obvious type rejection, three criteria must be met 1) there must be some suggestion or motivation to combine the references; 2) there must be a reasonable expectation of success; 3) the prior art references must teach or suggest all of the claim limitations. See MPEP 2143.

The Court of Appeals for the Federal Circuit has also addressed the requirement that before the PTO may combine the disclosures of two or more prior art references in order to establish prima facie obviousness, there must be some suggestion for doing so..." In Re Jones, 958 F.2d 347, 21 U.S.P.Q. 2d 1941 (Fed Cir. 1992), See Also In Re Fine, 837 F.2d 1596, 1598-99 (Fed Cir. 1988). See also MPEP 2143.01 and In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). In Kotzab the court found that while the control of multiple valves by a single sensor rather than by multiple sensors was a "technologically simple concept," there was no finding "as to the specific understanding or principle within the knowledge of the skilled artisan" that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ 2d at 1318.

It is respectfully submitted that there is no suggestion to combine the references of *Jacobsen*, *Engelhardt et al* and *Qian* because these microscopes are all designed entirely different from each other. First, the disclosure of *Jacobsen* is directed towards a scanning microscope with an external spectrograph. This device is not able to perform FCS measurements without substantial design changes. For example, at least two time depending detector units must be installed to create a correlation measurement. It is respectfully submitted that no person skilled in the art would replace a photoelectric detector (11) as shown in *Jacobsen*, with a time depending detector as required for fluorescence correlation spectroscopy since photoelectric detector 11 is an intrinsic element of this *Jacobsen* microscope. This means that both time depending detector units must be installed at outlet 15 (See Fig. 1) which is the only optical connection for this *Jacobsen* microscope.

One requirement for an obviousness type rejection is that the proposed modification cannot change the principle of operation of a reference See *In re Ratti* 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959) and also MPEP 2143.02. In the case of the *Jacobsen* reference, this microscope is directed towards an entirely different purpose than the claimed invention and by requiring the removal of the detector 11 that is required for

performing the operation of the Jacobsen reference. Thus, this physical change would ultimately also change the principle operation of the Jacobsen reference which was directed towards "a process for producing and correlating light microscope images and spectroscopic data.." as stated in col. 1 lines 6-8 of Jacobsen. This process would not be possible if the design of the Jacobsen reference was fundamentally altered as suggested by the Examiner.

Even if this microscope in Jacobsen is changed or modified to provide the a fluorescence correlation spectroscopy microscope of the present invention in claim 22, it will not provide the results that may be used for Fluorescence Correlation Spectroscopy (FCS) measurements. This is because the optical path between the dichroic beam splitter and the detector is much too long and unstable. Because of this instability, this will lead to correlated fluctuations within the measured light that are not caused by the molecules being observed. FIGS. 2 and 3 of Jacobsen show an optical fiber between the spectroscope and the optical outlet. In this view, any movement of this fiber such as due to vibration will lead to correlated fluctuations of light which would be detected as correlated fluctuations of the observed molecules. Thus, it is respectfully submitted that a person skilled in the art would not use this document to find a solution for FCS measurement.

It is respectfully submitted that the microscope of *Jacobsen* is therefore a "specialized" microscope and not a standard microscope as described in *Qian et al.* This *Jacobsen* microscope is specialized for correlating light microscope images and spectroscopic data not a standard epifluorescence microscope images.

While *Qian* teaches using a standard microscope for FCS measurements, *Qian* does not teach in detail how a standard microscope is to be changed for FCS measurements. *Qian* only suggests to couple this device to a laser in confocal geometry. As stated above, for an Examiner to make an obviousness rejection, there must be a reasonable expectation of success. Because *Qian* would require undue experimentation to provide the device or solution disclosed in claim 22, it is respectfully submitted that claim 22 as amended is patentable over the above references.

In addition because the support body containing the components is disposed outside of the main body of the microscope and this feature is included in a support body that is attachable to, or detachable from a standard microscope it is respectfully submitted that claim 22 is patentable over the above cited references.

Claims 23-25, 28, 31, 32, and 35-40 depend from claim 22 so therefore, it is respectfully submitted that these claims are patentable as well. In addition, because the Examiner has combined the *Jacobsen* reference with *Qian* and *Engelhardt* for the rejection of claims 42, 43, 46 and 47, it is respectfully submitted that these claims are patentable as well. This is because claims 42-47 are all directed towards a FCS module arrayed in a microscope and not towards the device disclosed in *Jacobsen*, *Engelhardt et al* or *Qian* or any obvious combination extending therefrom. In addition these additional independent claims are all directed towards a support body disposed outside of the main body of a microscope. This feature is shown in FIG. 1 of the present invention. Since this is a separate module, separate from the main body of a microscope it can be added or connected to a coupling connection on a standard microscope so that it can be used to change a standard microscope into a special microscope. Therefore it is respectfully submitted that all of the remaining claims are patentable over the above cited references taken either singly or in combination.

In conclusion, claims 22, 42-44, 46 and 47 have been amended. Claims 22-25, 28, 31, 32, 34-40 and 42-49 remain in the application.

Early allowance of the remaining claims is respectfully
requested.

Respectfully submitted,

TEWES ET AL



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I hereby certify that this correspondence is being sent by facsimile transmission to the
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